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XXVI. *Of the Tides in the South Seas.* By Captain
James Cook, F. R. S.

TO SIR JOHN PRINGLE, BART. F. R. S.

S I R,

April 2, 1776.
Mile-End,

R. Apr. 18, 1776. **I**N compliance with your request, I send you my observations on the tides in Endeavour River, on the East Coast of New Holland, in latitude $15^{\circ} 26' S$.

About 11 o'clock in the evening of the 10th of June 1770, as we were standing off shore, the ship suddenly struck, and stuck fast on a reef of coral rocks, about six leagues from the land. At this time I judged it was about high water, and that the tides were taking off, or decreasing, as it was three days past the full Moon; two circumstances by no means in our favour. As our efforts to heave her off, before the tide fell, proved ineffectual, we began to lighten her, by throwing over-board our guns, ballast, &c. in hopes of floating her the next high-water; but, to our great surprize, the tide did not rise high enough to accomplish this by near two feet. We had now no hopes but from the tide at midnight; and these only founded on a notion, very general indeed among seamen,

seamen, but not confirmed by any thing which had yet fallen under my observation, that the night-tide rises higher than the day-tide. We prepared, however, for the event, which exceeded our most sanguine expectations; for, about 20 minutes after 10 o'clock in the evening, which was a full hour before high-water, the ship floated. At this time the heads of rocks, which on the preceding tide were, at least, a foot above water, were wholly covered. I was fully satisfied with the truth of the remark, after getting into the river, where we remained from the 17th of June till the 4th of August, repairing the damage the ship had received. As this was to be done with the assistance of the tides, it led me to make the following observations, which upon any other less important occasion might have escaped my notice.

The times of high-water on the full and change days I found to be about a quarter after nine; the evening-tide, at the height of the spring, to rise nine feet perpendicular, the morning-tide scarce seven; and the low-water preceding the highest or evening-tide, to fall or recede considerably lower than the one preceding the morning-tide. This difference in the rise and fall of the tide was uniformly the same on each of the three springs which happened while we lay in the place, and was apparent for about six or seven days; that is, for about three days before and after the full or change of the Moon. During the neap, the tide was very inconsiderable, and if there was any difference between the rise
of

of the tide in the day and in the night, it was not observed; but to the best of my recollection none was perceptible. Excepting two or three mornings, when we had a land-breeze for a few hours, we had the winds from no other direction than S.E., which is the same as this part of the coast, and from which quarter I judged the flood-tide came. The wind, for the most part, blew a brisk gale, and rather stronger during the day than the night. How far this last circumstance might affect the evening-tide, I shall not pretend to determine; nor can I assign any other cause for this difference in the rise and fall of the tide, and therefore must leave it to those who are better versed in this subject than,

SIR, your, &c.